

measuring a parameter of the loop; and
analyzing the parameter to provide a diagnostic output.

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Cont
²⁹
~~27~~. (New) The method of claim ²⁸~~26~~ wherein analyzing the parameter includes performing a neural network analysis on the measured parameter.

³⁰
~~28~~. (New) The method of claim ²⁹~~27~~, wherein analyzing the parameter further includes performing fuzzy logic upon the measured parameter.

³¹
~~29~~. (New) The method of claim ²⁸~~26~~, wherein analyzing the parameter includes performing fuzzy logic upon the measured parameter to provide the diagnostic output.

³²
~~30~~. (New) The method of claim ²⁸~~26~~, wherein operably coupling diagnostic circuitry to the loop includes operably coupling the diagnostic circuitry to the loop via a loop communicator to allow the diagnostic circuitry to access data communicated by the loop communicator.

³³
~~31~~. (New) The method of claim ²⁸~~26~~ wherein analyzing the parameter to provide a diagnostic output further comprises applying a least squares method analysis to the measured parameter.
